FIG. 1
CONVENTIONAL ART

SET 1: (1)

SET 2:
$$\begin{matrix} W_0 \\ W_1 \end{matrix} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$$

SET 4:
$$\begin{matrix} W_0 \\ W_1 \\ W_2 \\ W_3 \end{matrix} \begin{pmatrix} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} & \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} \\ \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} & \begin{pmatrix} -1 & -1 \\ -1 & 1 \end{pmatrix} \end{pmatrix}$$

SET 8:
$$\begin{matrix} W_0 \\ W_1 \\ W_2 \\ W_3 \\ W_4 \\ W_5 \\ W_6 \\ W_7 \end{matrix} \begin{pmatrix} \begin{pmatrix} 1 & 1 & 1 & 1 \\ 1 & -1 & 1 & -1 \\ 1 & 1 & -1 & -1 \\ 1 & -1 & -1 & 1 \end{pmatrix} & \begin{pmatrix} 1 & 1 & 1 & 1 \\ 1 & -1 & 1 & -1 \\ 1 & 1 & -1 & -1 \\ 1 & -1 & -1 & 1 \end{pmatrix} \\ \begin{pmatrix} 1 & 1 & 1 & 1 \\ 1 & -1 & 1 & -1 \\ 1 & 1 & -1 & -1 \\ 1 & -1 & -1 & 1 \end{pmatrix} & \begin{pmatrix} -1 & -1 & -1 & -1 \\ -1 & 1 & -1 & 1 \\ -1 & -1 & 1 & 1 \\ -1 & 1 & 1 & -1 \end{pmatrix} \end{pmatrix}$$

FIG. 2A
CONVENTIONAL ART

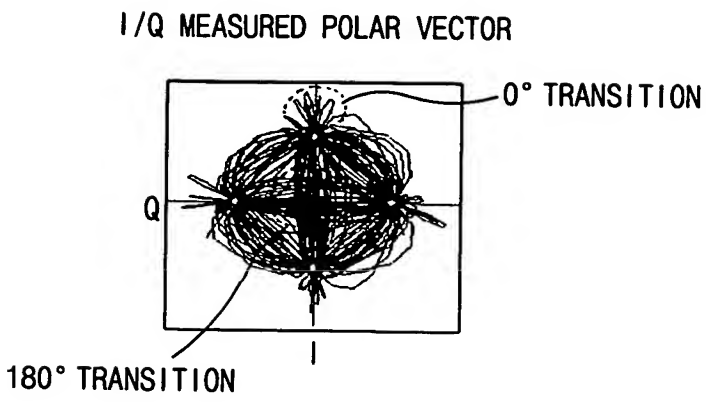


FIG. 2B
CONVENTIONAL ART

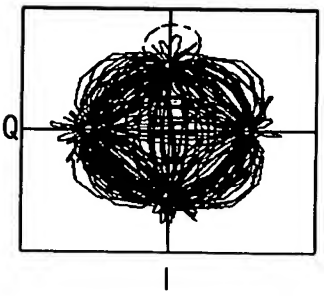


FIG. 2C
CONVENTIONAL ART

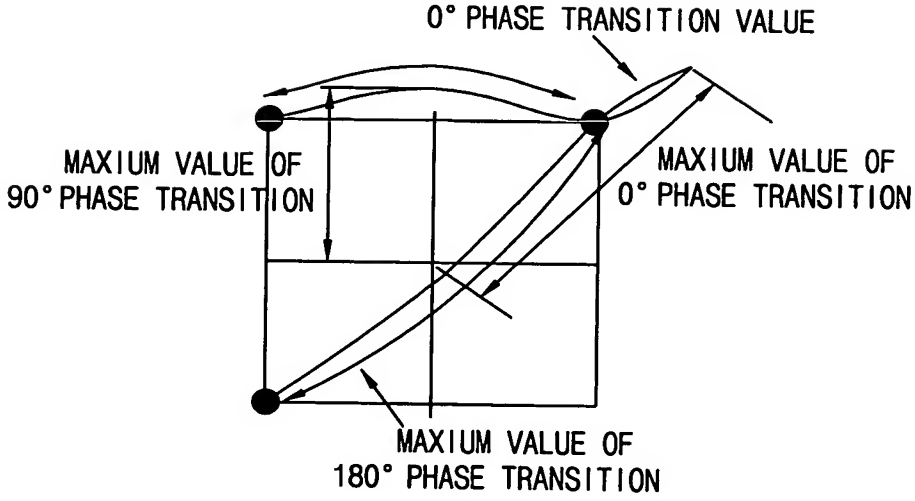


FIG. 3
CONVENTIONAL ART

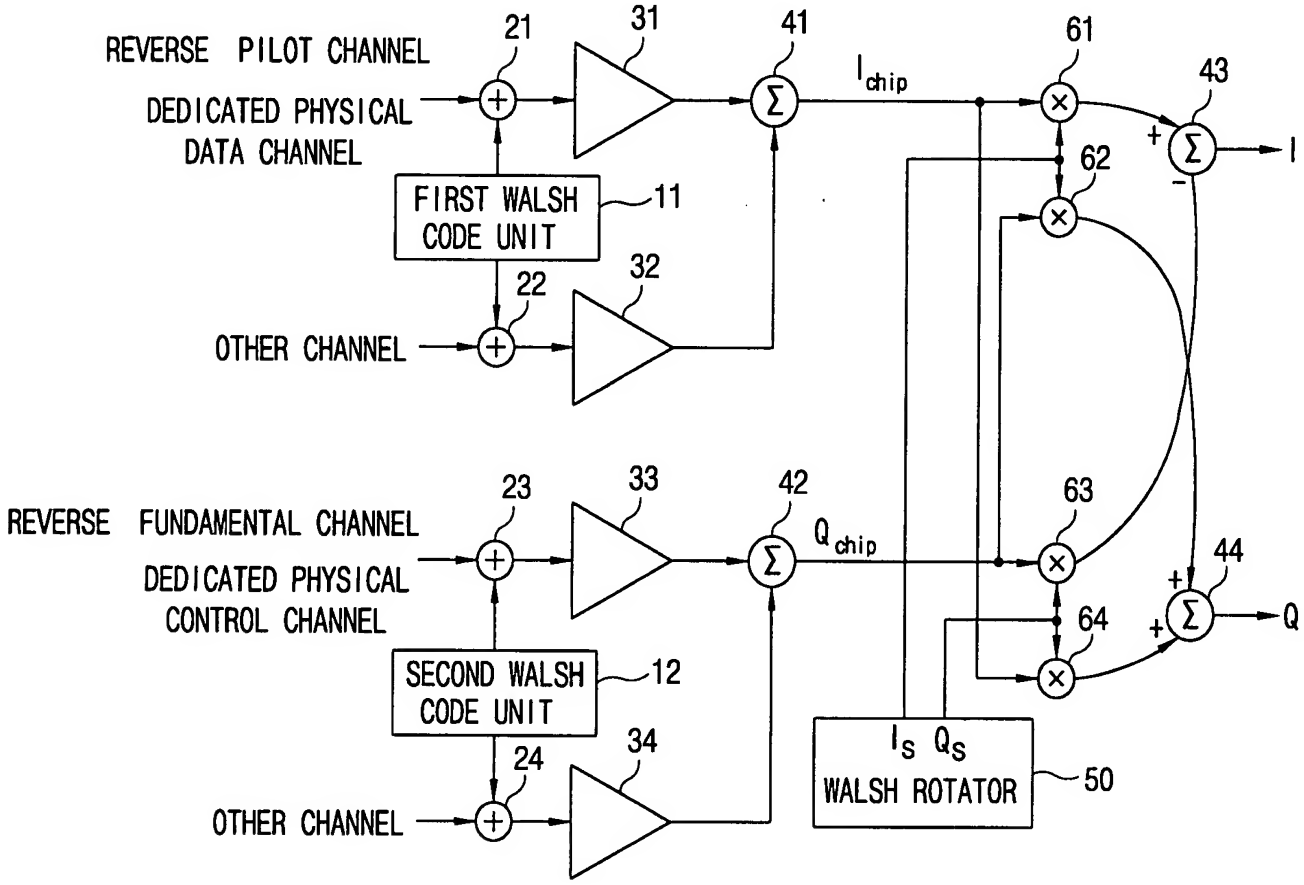


FIG. 4
CONVENTIONAL ART

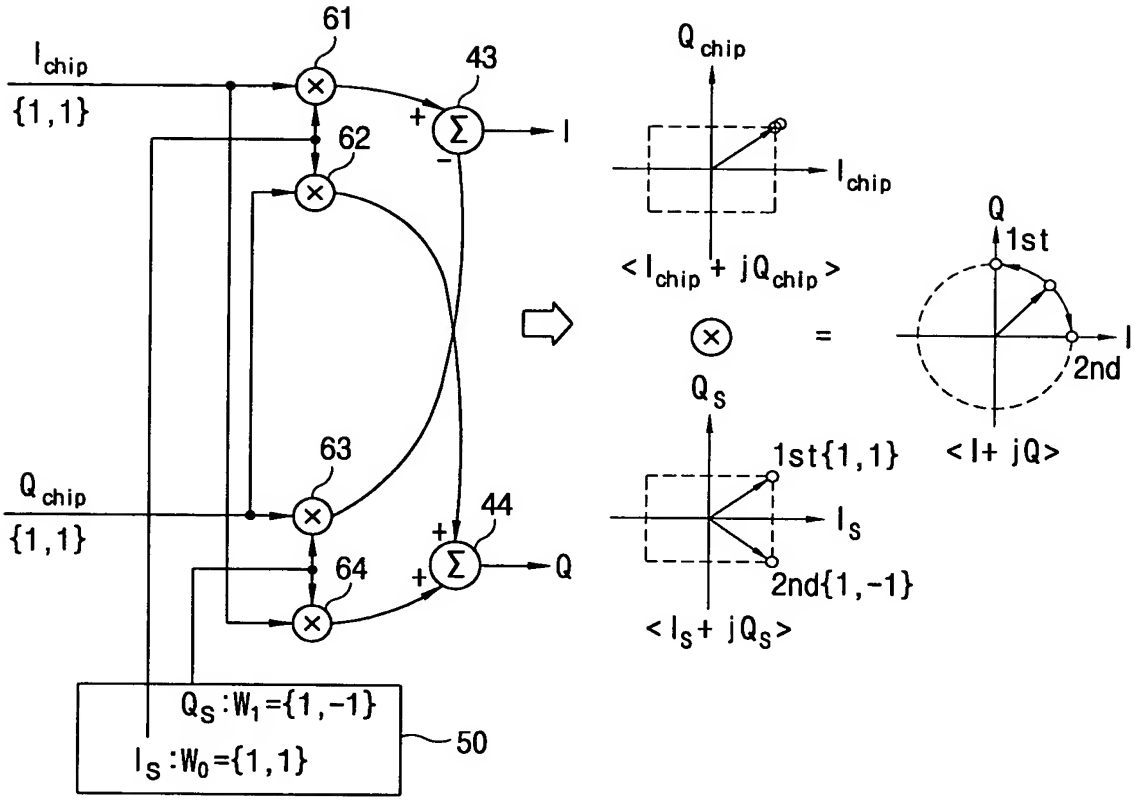
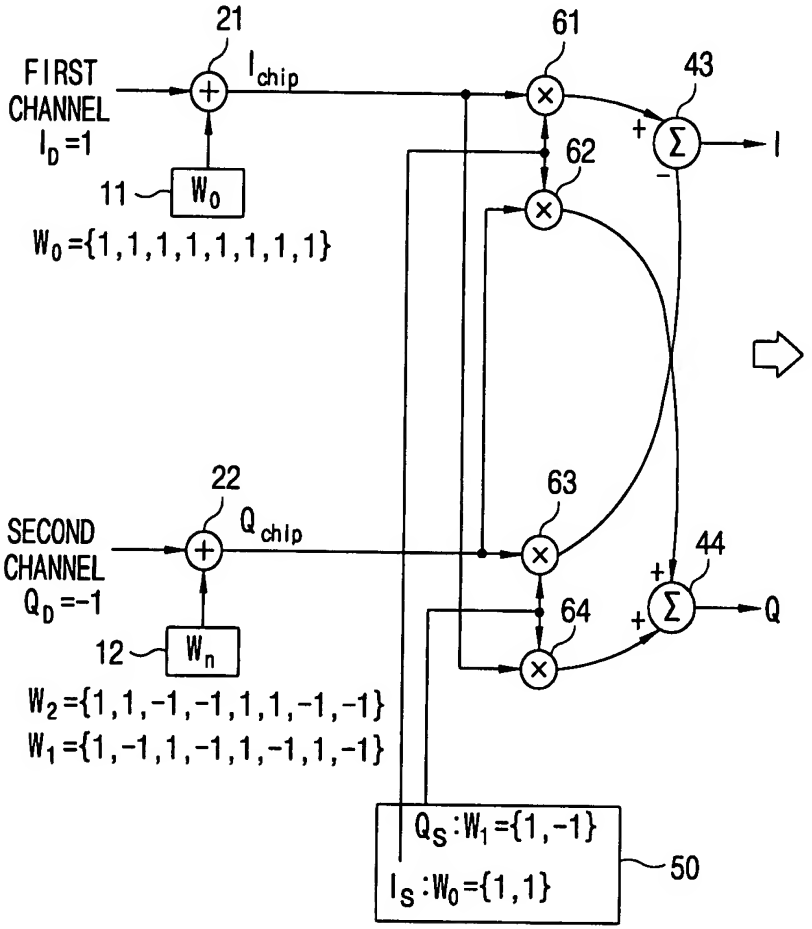


FIG. 5
CONVENTIONAL ART



I_{chip} { 1 1 1 1 1 1 1 1 }
Q_{chip} { -1 1 -1 1 -1 1 -1 1 }

$\{\widehat{0,0,0,0,0,0,0,0}\}$

I_{chip} { 1 1 1 1 1 1 1 1 }
Q_{chip} { -1 1 -1 1 -1 1 -1 1 }

$\{0,\widehat{-90,90},\widehat{0,0},\widehat{-90,90},0\}$
ZERO CROSSING ZERO CROSSING

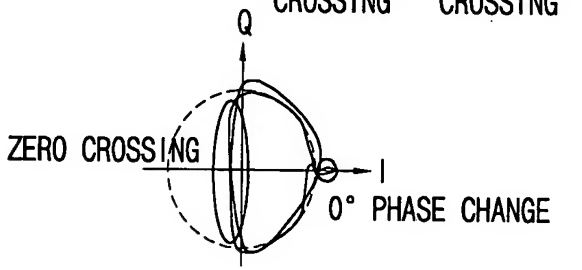


FIG. 6

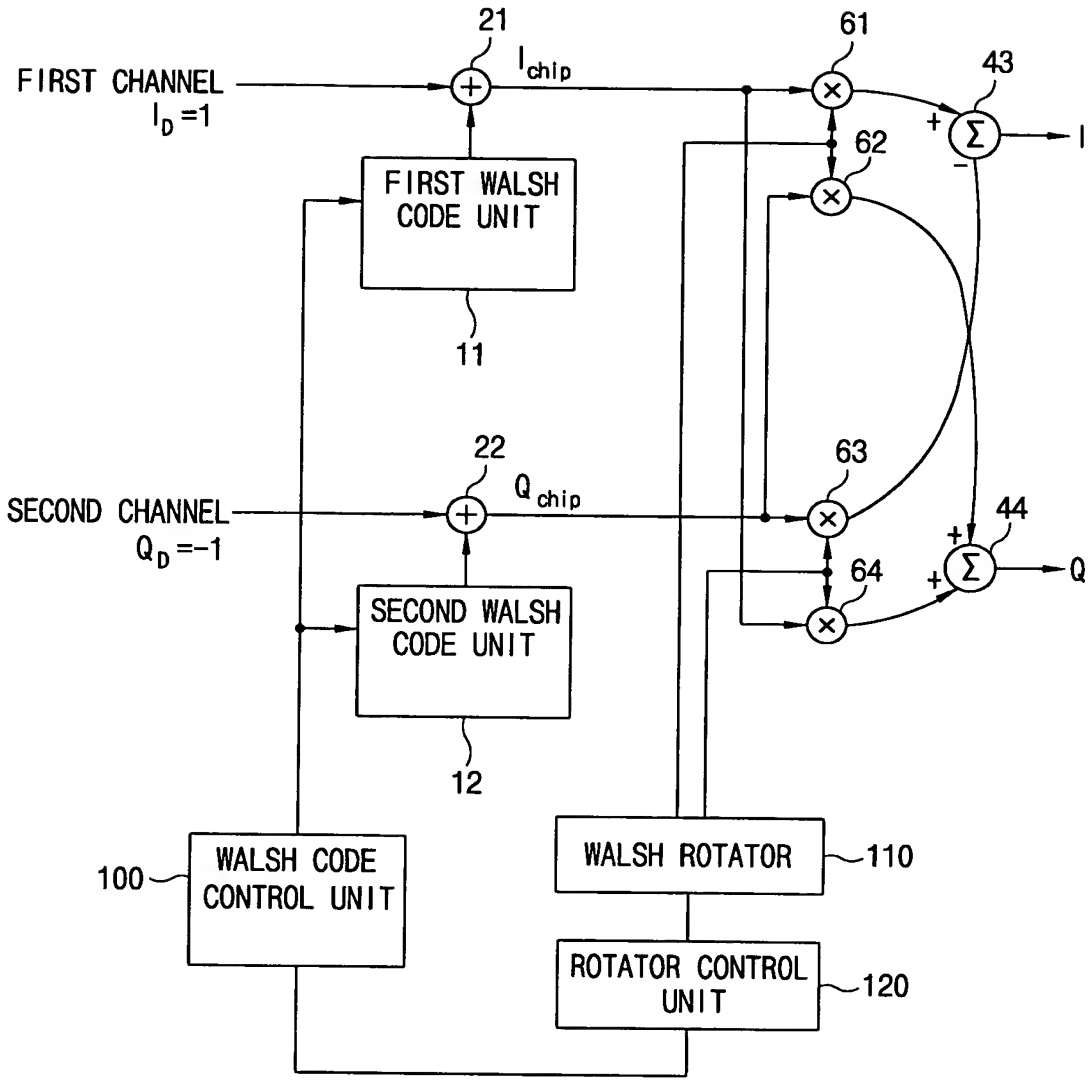
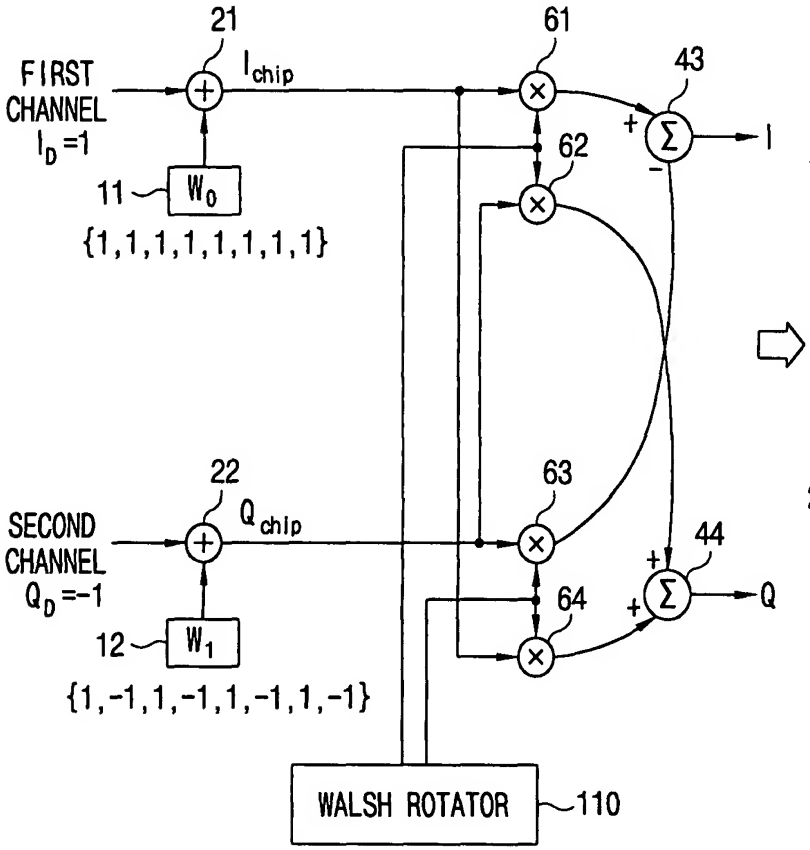

21
61
43
FIRST CHANNEL
I_D =1
I_{chip}
62
FIRST WALSH CODE UNIT
11
22
63
44
SECOND CHANNEL
Q_D =-1
Q_{chip}
64
SECOND WALSH CODE UNIT
12
100
WALSH CODE CONTROL UNIT
WALSH ROTATOR
110
ROTATOR CONTROL UNIT
120
I
Q

FIG. 7



WALSH SET ROTATOR

1. IN CASE OF FIRST SET, I_{chip} { 1 1 1 1 1 1 1 1 }
Q_{chip} { -1 1 -1 1 -1 1 -1 1 }

ALL 0° PHASE CHANGE

PHASE OF I+jQ= {0,0,0,0,0,0,0,0}

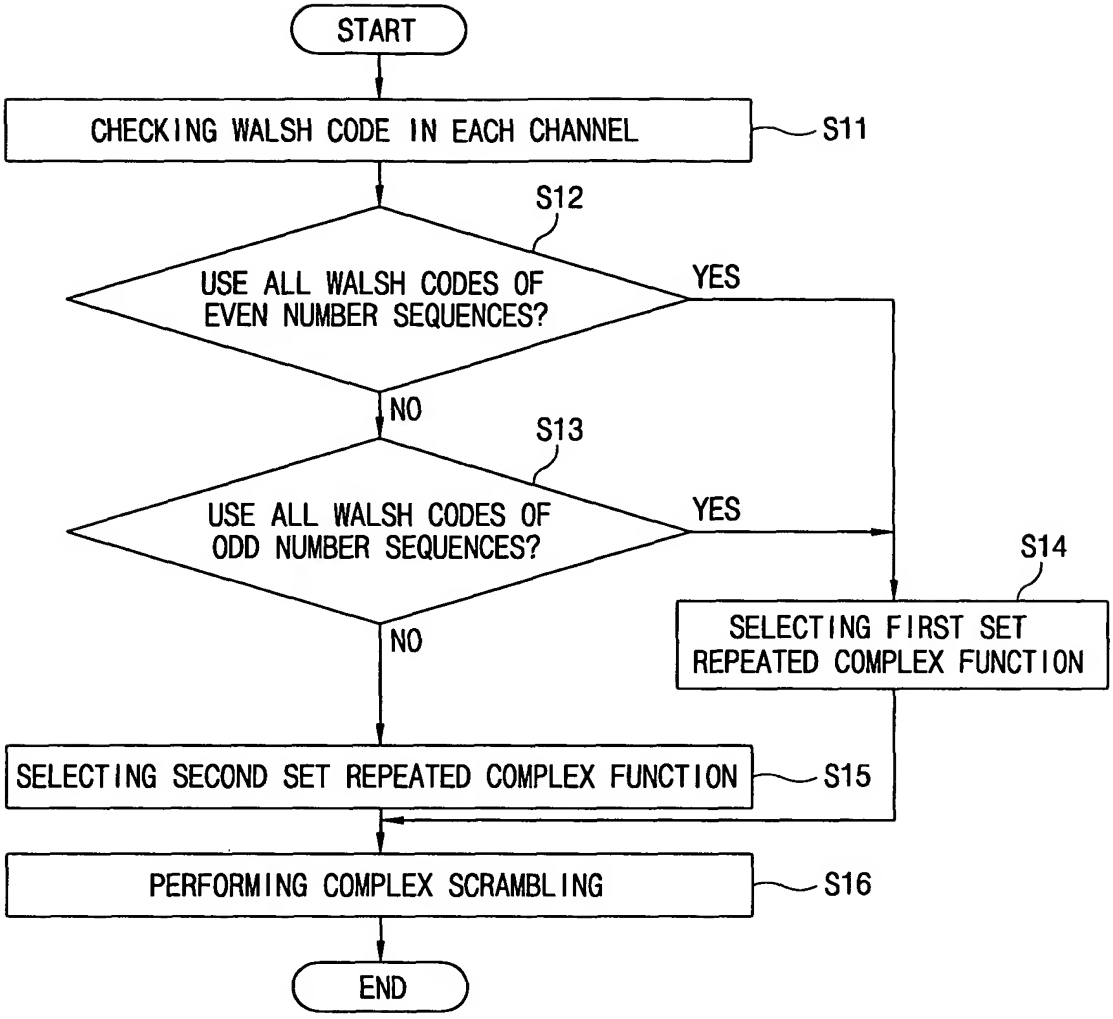
→ PEAK POWER IS GENERATED IN EVERY TRANSITION

2. IN CASE OF SECOND SET, I_{chip} { 1 1 1 1 1 1 1 1 }
Q_{chip} { -1 1 -1 1 -1 1 -1 1 }

PHASE OF I+jQ={0,90,0,90,0,90,0,90}

→ JUST 90° PHASE TRANSITION IS GENERATED, THERE IS LITTLE POWER CHANGE

FIG. 8


START
CHECKING WALSH CODE IN EACH CHANNEL
S11
S12
USE ALL WALSH CODES OF EVEN NUMBER SEQUENCES?
YES
NO
S13
USE ALL WALSH CODES OF ODD NUMBER SEQUENCES?
YES
NO
S14
SELECTING FIRST SET REPEATED COMPLEX FUNCTION
SELECTING SECOND SET REPEATED COMPLEX FUNCTION
S15
PERFORMING COMPLEX SCRAMBLING
S16
END